

# **STATE OF MINNESOTA**

## **ENVIRONMENTAL QUALITY BOARD**

**In the Matter of Xcel Energy's  
Application for a Route Permit for a 345-  
kV High Voltage Transmission Line and  
a 115-kV High-Voltage Transmission  
Line in Southwest Minnesota**

**ENVIRONMENTAL IMPACT  
STATEMENT SCOPING DECISION  
Docket No. 03-73-TR-XCEL  
September 24, 2004**

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The above-entitled matter came before the Chair of the Minnesota Environmental Quality Board (EQB) for a decision on the scope of the Environmental Impact Statement (EIS) to be prepared for a route-permit for the proposed Split Rock Substation to Lakefield Junction Substation 345-kilovolt transmission line and the Nobles County Substation to Chanarambie Substation 115-kilovolt transmission line.

Having reviewed the record in this matter, I hereby make the following Scoping Decision regarding:

1. The routes, route-segments, and substation areas to study in the EIS;
2. The scope of the analysis to be completed in the EIS; and
3. The anticipated permit schedule.

### **I. Background**

Xcel Energy applied for its route permit on April 30, 2004. The permit application describes Xcel Energy's analysis of potential routes, its preferred route and route segments, and other required information. See Minn. Rule 4400.1150. The EQB Chair accepted Xcel Energy's permit application on May 12, 2003.

### **Scoping Process**

Scoping is the first step in the EQB route-permit process after application acceptance. The scoping process has two primary purposes. The first purpose is to ensure that the public has a chance to participate in determining what routes and issues to study in the EIS. The second purpose is to help focus the EIS on the most important issues surrounding the route-permit decision. See Minn. Rule 4400.1700. The EQB staff held four public meetings on the following dates: June 1, Lakefield American Legion; June 2, Wilmont Community Center; June 9, Chandler City Hall; June 10, Luverne Public Library. EQB staff also held three meetings of the

citizens advisory task force in July in Reading, Minnesota. In addition, EQB staff discussed the project and potential routes with numerous members of the public, including task force members. The deadline for written comments on the scope of the EIS was August 15, 2004.

## **Public Comments**

The public suggested over twenty-five new route segments to consider for the EIS. In addition, the public encouraged the EQB to consider a number of issues, including (1) the health impacts of magnetic fields (2) landowner compensation (3) wind-development potential, (4) local-government liability for the cost of relocating power poles, and (4) long-term transmission planning. A staff summary of public comments is provided in Appendix A. Copies of scoping comments are available on the EQB web site or from EQB upon request.

## **II. MATTERS TO BE ADDRESSED IN THE EIS**

Xcel Energy's permit application describes its route analysis and its proposed routes and structures, as required by Minn. Rule 4400.1150. To reduce the scope and bulk of the EIS, the EIS will summarize the information in the permit application and verify, supplement, and incorporate the information by reference as appropriate. See, e.g., Minn. Rule 4410.2100 to 4410.2400.

The environmental impact statement for the proposed project will address the matters listed below.

### **1.0 Summary.**

The EIS summary will briefly describe the proposed transmission line structures, right-of-way requirements, alternative routes and route segments under consideration. The summary will compare the major impacts and benefits of alternative route segments along with other information and findings that are critical to the choice between alternative routes.

### **2.0 Introduction**

The purpose of the proposed project will be described, as determined in Certificate of Need. In addition, the introduction will summarize other regulatory and procedural background information, including property acquisition procedures for the land where the transmission line may be routed.

### **3.0 Route Selection Process**

The EIS will summarize the process Xcel Energy used to identify, evaluate and select its alternative routes and route segments. In addition, the EIS will summarize the process and criteria developed by EQB staff and the Citizen Advisory Task Force to help evaluate and screen other alternative transmission line routes and substation areas. These screening criteria are provided in Appendix B.

#### **4.0 Description of Project and Alternative Routes.**

- 4.1. Structure Design. The EIS will include a description of engineering design, construction methods, right-of-way requirements, anticipated magnetic and electric field strength; and appearance of the proposed transmission lines for the 345-kV line and the 115-kV lines;
- 4.2. Xcel Energy Routes. With one exception, the EIS will include all routes and route segments proposed by Xcel Energy in its permit application, including the segments that Xcel did not select as part a specific route. The Xcel segment that is not included in the EIS is the part of Xcel Segment I7 in Nobles County that is outside of Substation Area B. (See Appendix D regarding rejected routes.) In addition, Xcel Energy specifically rejected one route in its permit application, Segment B27, in Jackson County. That route will not be included for further study in the EIS.
- 4.3. New Alternative Routes on 345-kilovolt line. The EIS will include the following additional route segments for the Split Rock to Lakefield Junction 345-kilovolt line. (See Figure 1). The selected route segments are described in detail in Appendix C.

##### Rock County

R1. This route-segment is an alternative to Xcel's Segment T5 on the "Alliant Route."

##### Jackson County

J1. This route-segment is an alternative to Xcel's route-segment I8 along the "Interstate Route" along I-90 that turns north about five miles west of Xcel's proposed route-segment in the area.

J2. This route-segment is an alternative pathway on the "Alliant Route," between the Alliant 161-kV line and the Lakefield Junction Substation.

J3. This route-segment is an another alternative path between the Alliant 161-kV line to the north and the Lakefield Junction Substation.

J4. This route-segment is an alternative connection between Segment J3 and the 161-kV line to the south (Xcel Segment T14), along the ¼ -section line between east-west segment J3.

J5. This route-segment is an another alternative north-south connection between Segment J2 or J3 to the existing 161-kV line one mile to the south.

J6. This route segment is a third, easternmost alternative pathway between routes J2 or J3 and the existing 161-kV route one mile to the south, after which

the new line would be double-circuited with the existing line on Xcel's Segment T14.

#### 4.4 New Alternative Routes on the 115-kilovolt line.

In addition to the route segments proposed by Xcel Energy, the EIS will include the following route segments for the Nobles County Substation to Chanarambie Substation 115-kilovolt line. (See Figure 2). Also, the selected route segments are described in detail in Appendix C.

##### Nobles County

N1. This is a one-half mile route-segment that follows County 18 for one-half mile, connecting Xcel Energy's East and West Routes.

N2. This route-segment provides an alternative to Xcel's Segment W4 in the area, which passes near several residences and crosses crop land in sections 8 and 17.

N3. This one-half mile long route-segment is an optional connection between Segment N2 and Xcel route-segment W4.

N4. This one-half mile long route-segment follows 120<sup>th</sup> Street and then turns north-south along Dillman Avenue where there are no adjacent homes, instead of crossing fields in section 8 as proposed by Xcel's Segment W4.

N5. This is an approximately one and one-half mile route-segment (See Figure 5) that is included for study in the EIS as a potential connecting route for the 115-kV line between a Nobles County Substation in Study Area B and the 115-kV routes.

##### Murray County

M1. This is a one-mile long north-south segment through section 32 of Fenton Township as an alternative to Xcel's Segment W5 along 70<sup>th</sup> avenue, which has two adjacent residences and associated tree groves.

M2. This is a one-mile long east-west segment that crosses between Xcel's East and West Routes along a township road, also intended to provide an alternative to Xcel Segment W5 that avoids the homes and tree groves along 70<sup>th</sup> Avenue to the south.

M3. This route-segment (with route-segment M5) is an alternative that largely follow Murray County 29, and is intended to provide alternative routes to study in the EIS that may pass near fewer homes than Xcel's proposed routes in this area.

M4. This is a two-mile long segment that provides an alternative cross-over from Segment M3 on County 29 to the Xcel Segment E4.

M5. This route-segment intersects with Segments M4 and M3 and extends east along County 29 for one-half mile and then turns north to follow County 29 for four miles, where it then intersects 91<sup>st</sup> at an existing 69-kV transmission line.

## **Section 5.0 Description of Potential Nobles County Substation Areas**

The EIS will evaluate the substation areas proposed by Xcel Energy in its permit application. In addition, the EIS will evaluate the transmission line routes necessary to connect a substation site to the potential transmission line routes. Although alternative substations sites were considered in Nobles County (see Appendix D), no substation sites in addition to those proposed by Xcel Energy were selected for further study in the EIS.

## **Section 6.0 Environmental, Economic, and Sociological Impacts.**

The EIS will describe and analyze the following potential transmission-line impacts, including ways to minimize the impacts. The EIS will summarize and incorporate information by reference from the Xcel Energy application where feasible. However, some of the following issues were first raised during scoping, and were not addressed in the Xcel Energy permit-application (or not addressed in detail). These new issues are listed below in *italics*.

- 6.1 Human Health and Safety. The EIS will summarize the current regulatory and scientific status of health risks related to electric and magnetic fields and the potential for nearby high-voltage transmission lines to create stray voltage problems and methods to reduce such problems. The EIS will estimate location and strength of electric and magnetic fields due to high voltage transmission lines for each route, and a comparison of number of residences located within various distances from each of the routes and route segments. The EIS will also summarize the potential impacts of the proposed transmission line routes due to noise, visual impacts, and other potential impacts that are required to be addressed in the route-permit application in Minn. Rule 4400.1150.
- 6.2 Feasibility and Cost. The EIS will assess the technical feasibility and cost of each alternative route and route segment.
- 6.3 Impacts on Natural Environment. The EIS will summarize potential impacts of transmission line installation and operation on tree groves, wetlands, wildlife, rare and unique natural resources, critical habitat and other related issues.
- 6.4 Waterfowl Impacts. The EIS will assess the risks and impacts of transmission lines on waterfowl and wildlife, with an emphasis on wildlife management areas and wetlands, as well as methods to mitigate any risk of avian injury or death caused by collision with nearby transmission lines.

- 6.5 Impacts on Archeological and Historic Resources. The EIS will assess the impacts of each potential route on specific, documented archaeological and historic resources, including impacts on tribal resources. This will require additional coordination with tribes, beyond that completed to date by the applicant.
- 6.6 Impacts on Agriculture. The EIS will summarize potential impacts on agriculture, including the amount of prime farmland required to be taken out of production.
- 6.7 Land Use and Economics. The EIS will summarize the following issues:
- A. Potential property value changes on residential and commercial parcels;
  - B. Compatibility with existing land-use as well as compatibility with local zoning and other local land use ordinances and plans, recognizing that the state route-permit, which is issued under the Power Plant Siting Act, preempts local land use authority.
- 6.8 Wind Resource Development. A comparison of each route's potential to increase wind-energy development in the area, based on minimizing interconnect costs to nearby good wind-resource areas.
- 6.9 Grid Reliability. A comparison of the impacts on transmission system reliability for the selected alternative routes and designs, including the impact of taking existing lines out of service during construction as well as the reliability impact of operating the new and existing transmission lines on one set of poles (instead of constructing a separate line some distance from the existing lines). This reliability analysis will also evaluate emergency preparedness plans in case of disruption of the new transmission line.
- 6.10 Corridor Width. An evaluation of which route segments, if any, may require a different corridor width to be specified in the route-permit than requested by Xcel Energy in its permit application, along with a precise description of the design and route that would be used on the selected segments.
- 6.11 Pole Placement Along Roads. The EIS will include the following analysis regarding transmission line placement along existing roadways. (But see Section IV, below, for what is not in scope of EIS.)
- A. A summary of the minimum transmission line setbacks required for safety reasons from federal, state, township and county roadways;
  - B. An evaluation of the prime farmland required if poles are placed outside of, instead of within, adjacent road rights-of-way;
  - C. A summary of current local-government roadway-expansion plans along all routes and route segments to be evaluated.
- 6.12 Substation Criteria. A comparison of substation areas based on the criteria listed in Appendix C.

- 6.13 Minimum Residential Setback Requirements. Information on minimum electric codes applicable to transmission lines and required distances to homes and buildings.
- 6.14 Impacts on Statutory Historical and Archeological Properties. In addition to identifying specific historical or cultural resources in the project area and evaluating ways to avoid them, the EIS will seek ways to avoid and mitigate any adverse effects of specific routes on statutorily-designated historic properties (Buffalo Ridge in Murray County and Blue Mound, Rock County) in consultation with the Minnesota Historical Society. See Minn. Stat. §138.665 and Minn. Stat. §138.664, Subd 9 and Subd. 13. This analysis will require consultation with tribes regarding potential impacts on tribal interests due to specific proposed routes;
- 6.15 Compatibility With Future Transmission Needs. A summary of the amount of wind-energy projects likely to be constructed in the Buffalo Ridge area over the next decade, with a brief summary of additional transmission likely to be needed to accommodate this expansion. The EIS will attempt to evaluate, to the extent possible, whether and to what extent various route alternatives differ in respect to compatibility with likely future transmission plans.
- 6.16. Capability for Future Expansion. An analysis of whether the proposed high-voltage lines should be built to be capable of operating at higher voltages, as double circuits, or with other designs that would make it easier to increase outlet capacity in the future.

## **Section 7.0 Route Analysis and Comparison**

The EIS will analyze and compare the impacts, costs, and benefits of each alternative route, route-segment, and substation location, including an analysis of potential methods to eliminate or minimize any adverse impacts. This route analysis will also include a comparison of unavoidable adverse impacts of each route segment and substation location.

## **III. REJECTED ROUTES**

The route segments reviewed but rejected in the scoping process are described in Appendix D.

## **IV. ISSUES OUTSIDE THE SCOPE OF THE EIS**

The EQB will not, as part of this EIS, consider the following issues in the EIS:

- A. System Alternatives. The EIS will not evaluate whether a different high-voltage transmission system alternatives or voltages other than those approved by the Public Utilities Commission should be built.
- B. No Build. The EIS will not evaluate whether no transmission line should be built.

- C. Pole Relocation Liability. The EIS will not evaluate the policy issues surrounding whether utilities or local-government should be liable for the cost to relocate utility poles when roadways are widened (but see Section IIIC, above).
- D. Cumulative Impacts on Buffalo Ridge. The EIS will not evaluate the cumulative impacts of existing and future wind-development and related transmission lines on the entire Buffalo Ridge area as a historical and residential resource, but will instead summarize the impacts due to this specific project and mitigation options available to reduce any impacts, in consultation with the Minnesota Historical Society, tribes and local government.
- E. Landowner Compensation. The EIS will not evaluate the manner in which land owners are paid for transmission right-of-way easements, because the issue is outside EQB route-permitting jurisdiction.

## **VI. IDENTIFICATION OF PERMITS**

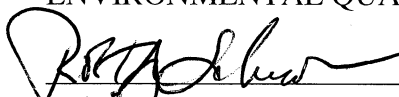
The EIS will include a list of permits required for the applicant to construct this project.

## **VII. SCHEDULE**

The EIS will be completed in accordance with the anticipated schedule provided in Appendix E.

Signed this 24<sup>th</sup> day of September, 2004

STATE OF MINNESOTA  
ENVIRONMENTAL QUALITY BOARD

  
Robert A. Schroeder, Chair



## **Appendix A**

### **EQB Staff Summary of Selected Scoping Comments**

The following list is an EQB staff summary of major public comments on the scope of the environmental impact statement for the Xcel Energy 345/115-kV high-voltage transmission line in Southwest Minnesota:

#### Landowner Compensation

1. Utilities should not be allowed to use eminent domain for transmission projects that are primarily needed for economic or environmental reasons, such as for wind-energy development. Eminent domain should be reserved only for transmission projects that are truly needed for a legitimate public purpose; that is, that are required to meet minimum reliability and local needs.
2. If allowed to use eminent domain, current utility compensation to landowners is unfair, given the and the amount of disruption to farming operations;
3. Instead, compensation to landowners for wind-energy related transmission lines should be tied to wind-energy production, not market-value of the land.

#### Wind-Energy Potential

4. The EIS should assess which transmission routes and substation sites maximize future wind development opportunities, primarily by minimizing the distance and costs required to interconnect likely wind-projects into the new transmission;
5. Substation sites in particular should be evaluated based on how close they are to areas of high wind-development potential, with priority given to locally-owned wind project areas;

#### Human Health and Environment

6. The EIS should consider the potential health effects of magnetic fields and problems with stray voltage;
7. The EQB should not allow any new high-voltage transmission line to come within 300 feet of any occupied residence;
8. The EIS should provide more detailed information on minimum electric codes and required distances from homes and buildings
9. Routes should be evaluated based on whether they can avoid tree groves;
10. Impacts on wetland and wildlife management areas should not be weighted more than impacts on people. Other comments, however, focused on minimizing impacts on waterfowl and other wildlife, particularly near South Heron Lake in Jackson County;
11. The EIS should recognize that big transmission lines are ugly; and evaluate routes based on how well they minimize visual impacts.

### Long-Term Transmission Plans

12. The EIS should recognize that more high-voltage transmission and substations will be needed in the near future because of expected increases in wind-energy development in Southwest Minnesota. Therefore:
  - (a) the EQB should seriously evaluate whether the proposed transmission lines should be built to be capable of expansion to a higher voltage in the future; and
  - (b) routes and substation locations should be evaluated based on future transmission requirements for the area as a whole, not just for this project;
13. The EIS should evaluate and the EQB should consider the project-specific and cumulative impacts—both positive and negative—of wind-energy development on Buffalo Ridge as a place to live (local landowners) and on Buffalo Ridge as a historical and tribal resource (State Historical Preservation Office). More specifically, the EIS should evaluate how best to minimize negative impacts of continued wind-energy development in general on views, noise, and traffic so the Buffalo Ridge area can retain its value as a historical resource and as a rural farming community.
14. Substation site comparisons should include an analysis of the likely negative impacts on nearby areas due to future feeder and high-voltage transmission lines crossing through the area to connect into the substation;

### Impacts on Agriculture

15. The EIS should evaluate routes based on whether they stay out of farm fields and avoid splitting farms and otherwise disrupting operations;
16. The EIS should evaluate whether on routes along roadways (including I-90 and township and county roads) the poles can be put within the existing road right-of-way instead of in fields in order to minimize impact on prime farmland and farm operations;

### Local Government

17. Local government believes that the EIS should assess, and the EQB should consider, the considerable indirect economic impact on local government of allowing the utility to place new power poles just outside existing road right-of-way. According to comments, under current law if a roadway must be widened, the utility must pay the high cost of relocating the poles when they are within existing road right-of-way. However, if the poles are just outside the existing right-of-way, the local unit of government must pay to relocate them. Specifically, Nobles County requests that the EQB require any new transmission line poles along roadways to be installed either within the existing right-of-way where it is safe to do so, or require that the poles be placed at least 100 feet from the edge of the existing right-of-way.

## **Appendix B**

### **High-Voltage Transmission Line and Substation Site Screening Criteria**

The Minnesota Power Plant Siting Act and associated rules list the minimum legal considerations and criteria the EQB is to use when selecting routes for new high-voltage transmission lines. See Minn. Stat. 116C.57, Subd.4 and Minn. R. 4400.3150. In addition, the primary purpose of the proposed Xcel Energy transmission lines is to increase the outlet capacity of the wind energy off Buffalo Ridge. See PUC Order Granting Certificates of Need, DOCKET NO. E-002/CN-01-1958 (March 11, 2003).

#### **Transmission Line Criteria**

After reviewing the minimum legal criteria and the issues specific to this project, the EQB staff, the Citizen Advisory Task Force, Xcel Energy and members of the public developed the following fifteen criteria to help evaluate and screen potential transmission line routes.

1. Maximize wind development opportunities by minimizing interconnect costs for future wind projects, with priority to community-owned projects; (See Figure 7 for map of elevation in the project area; elevation was used as a rough surrogate for wind-resource for screening purposes.)
2. Share right-of-way with existing transmission lines by double circuiting or paralleling if necessary;
3. Avoid impacts to reliability when existing lines are taken out of service;
4. Use parallel roads where possible, decreasing the amount of right-of-way and clearing required;
5. Parallel field lines, property lines, or railroad right-of-way; where access is adequate and the transmission line will cause minimal conflicts;
6. Minimize conflicts with farming operations;
7. Minimize length to minimize impact area and cost;
8. Avoid residences;
9. Avoid wetlands and wildlife management areas;
10. Avoid archeological or historically significant sites;
11. Avoid airport conflicts.

12. Avoid having to remove or damage tree groves;
13. Evaluation of “future needs for additional high-voltage lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity”; Minn. Stat. 116C.57, Subd. 4 (10).
14. Minimize aesthetic impact to views and scenery;
15. Consider vulnerability to terrorist threat.

### **Substation Site Criteria**

The proposed high-voltage transmission line project consists of two interconnected lines at different voltages. Therefore, the two proposed lines must interconnect at a new substation to be located in Nobles County (Nobles County Substation). Xcel Energy provided and the Task Force reviewed guidance to help assess potential sites for the new Nobles County Substation. These substation criteria are provided in Appendix C.

The following list of criteria were used to evaluate and screen potential routes and substation sites to evaluate in the EIS for the route-permit.

1. Proximity to 345 kV transmission line route and 115 kV transmission line route.  
This can be a “chicken and egg” situation since neither of the routes has been finalized yet. The location of the lines and substation site needs to be coordinated to balance the line and substation siting issues.  
  
Siting the substation closer to the 345 kV transmission line will avoid greater cost and siting impacts. The 115 kV transmission line route and substation site location have more flexibility. The 115 kV line interconnect should be next to a logical 345 route.  
  
It should also be near the existing Heron Lake to Split Rock 161 kV line since the new line would likely use that route around Worthington even if I-90 were used for the rest of the corridor.
2. Minimize impacts to residences.  
The site selection should try to maximize distance from homes. This will help to reduce noise and aesthetics impacts on residences. The substation sites presented in our application were between approximately 330 feet and 1,330 feet from residences. There is no set distance, but Xcel Energy would prefer a longer distance (such as 200 feet) away from the nearest home rather than a short distance such as 50 feet. We will also work to design the substation to locate the major facilities away from residences if possible.

3. Avoid wetlands and wildlife areas.

In addition to avoiding the wetlands to minimize impacts, it would also reduce costs since it would be more expensive to fill in the low wetland area and go through the additional permitting that may be required.

4. Site Near Wind Farm Projects to Maximize Wind Interconnection Opportunities and Minimize Interconnection Costs:

The Nobles county substation has always been planned to have a section for 34.5 kV feeders to accommodate interconnections with wind energy turbines. The primary siting criteria for the substation was to locate it near the Reading/Wilmont area, just north of Worthington, and to keep the substation close to Buffalo Ridge to be able to use it as a collector station.

The Nobles to Chanarambie 115 kV line needs to stay relatively near to the Buffalo Ridge to accommodate additional substation interconnects that will be required. The Fenton substation siting will move forward later this summer once contracts are signed. A general area for the site has been identified along segments W5 and E4, in the vicinity where the existing 69 kV line heads west along 31<sup>st</sup> street. No discussions with landowners or major siting efforts have occurred yet.

The Community Wind South Project has decided to tie into the Nobles County sub and is basing their plans on the proposed sites we have provided. They picked their site partly based on the proposed substation sites. Moving the substation site will increase the cost and length of 34.5 kV feeders to tie their project into the system.

5. Terrain. To reduce the need for grading the site, relatively flat sites are preferred.

6. Larger parcel (greater than 40 acres)

Xcel Energy would prefer a site that provides adequate space to site the substation away from nearby residences.

A larger site would also allow Xcel Energy to develop a vegetative screen from residences

A larger site would help accommodate additional transmission and wind feeder lines that will be entering substation.

A larger site will buffer the property from wind development. Some of our existing substations (such as Chanarambie and Buffalo Ridge) have had considerable wind turbine development around them, which can limit the ability to route transmission lines into the substation.

A minimum of 15 acres is required for the substation to accommodate the size of the substation and to provide a small buffer area. We would prefer to have at least 20 acres for the substation. A site that is at least 40 acres would be better and we would be willing to purchase a larger site to provide a buffer.

7. Availability of nearby corridors or routes for potential future high-voltage transmission line interconnections: Since this will be a major substation, it should be expected that additional transmission lines would be tied into the substation. The layout of the substation already has locations for the Heron Lake to Split Rock 161 kV line to connect in the future. We would also like ample space surrounding the substation for 34.5 kV wind feeder lines to enter the substation. It is uncertain what will be proposed, but it is reasonable to assume that additional 345 kV lines will be considered. We would expect that they would go north towards the Twin Cities or south towards Iowa. The main issue that would help address this issue is to purchase adequate land for the substation and a buffer and to site the lines so there is minimal conflict with future lines.
8. Proximity to primary roads: Xcel Energy will need large and heavy equipment to build the substation and place in the substation. Smaller roads are often not adequately rated for heavy equipment. Such roads would need to be upgraded prior to construction, or maintained during and after construction to repair damage to the road caused by heavy equipment. Access after construction will also be important for maintenance and operation since this will be a major facility on the transmission grid. Xcel Energy would prefer a site on a primary road or within a 1 mile of one.
9. We would prefer to have a willing seller and already have been approached by several landowners for the substation site. At this time, Xcel Energy would prefer to have a general area identified for the substation and work through the specific site location with the landowner. We may get more specific in the areas as the project moves forward.
10. Proximity to other transmission lines that may interconnect to substation. The substation is planned to include a tie (in/out connection) with the existing Heron Lake to Split Rock 161 kV line. There are no specific plans at this time for this interconnection, but the planners see it as a project that would serve to further increase the reliability of the transmission system in the region. Locating the substation near that line will reduce the amount of additional transmission lines that would need to be built into the substation.

## Appendix C

### Detailed Descriptions of Routes Selected for Analysis in the EIS

In addition to the route segments proposed by Xcel Energy, the EQB will study the following route segments for the Split Rock Substation to Lakefield Junction Substation 345-kilovolt line. (See Figure 1.)

#### A. Rock County

R1. This route-segment is an alternative to Xcel's Segment T5 on the "Alliant Route." Xcel Energy's proposed route in this area diverts from the existing 161-kv line in order to avoid the Little Beaver Creek and nearby farmlands and residences. Instead, Xcel's proposed Segment T5 follows CSAH 6 and 131<sup>st</sup> Street, which passes less than 500 feet from several residences on 131<sup>st</sup> Street. The new route-segment R-1, which follows the existing Alliant route, is added to allow additional analyses of the benefits and drawbacks of diverting from the existing Alliant 161 line in this area. In either case, the route segments will be evaluated assuming the existing 161-kV line (actually owned by Xcel Energy in this area) would be removed and both the new 345-kV line and the 161-kV line would be rebuilt as a "double-circuit" line constructed on one set of single-pole structures.

#### B. Jackson County

J1. This route segment deviates from Xcel's "Interstate Route" along I-90 by turning north along the half-section line in sections 12 and 13 in Ewington Township. Segment J1 then turns east-west along the half-section line for two miles through section 12 of Ewington Township and sections 7 and 8 in Rost Township, where it connects with Xcel Segments T12 and C6. This new segment avoids several residences along Interstate I-90.

J2. This route segment provides an alternative pathway between the Alliant 161-kV line and the Lakefield Junction Substation. Xcel's route segments in this area, T12 and T13, pass near several residences. This new segment takes several ninety degree turns and follows half-section lines in some areas in order to maximize distances to nearby residences. Segment J2 first extends east-west for one mile from the point where the existing 161-kV Alliant line turns north, crossing along the half-section line of sections 20 and 21 of West Heron Lake Township. It then turns north-south and follows the half-section line of 21 and 28 of the same township for one and one-half miles. At that point it turns east-west for two miles along 130<sup>th</sup> Street, crossing then along the section line cross country for one-mile to the half-section line of section 36. The route-segment then turns north-south again for one and one-half miles along the half-section line of section of Rost Township, ending in the center of section 1 of Rost Township, where it intersects route segments J3, J5 and J6.

J3. This route-segment provides another alternative path between the Alliant 161-kV line to the north and the Lakefield Junction Substation. It crosses east-west from Xcel's Segment T12 in

the center of section 5 of Rost Township crossing along the half-section line east for four miles to the center of section 1 of Rost Township , where it intersects with Segment J5 or J6. This route-segment also intersects with new Segment J4. So this segment could use Segment J4, J5 or J6 to connect to the existing 161-kV line one mile to the south.

J4. This segment provides a one-mile north-south connection on the  $\frac{1}{4}$  -section line between east-west segment J3 and the 161-kV line to the south (Xcel Segment T14). This segment is along the  $\frac{1}{4}$  section line of sections 2 and 11 of Rost Township to avoid a residence on the  $\frac{1}{2}$  section line to the east, with a 1000 foot wide corridor to be evaluated to allow Xcel Energy to accommodate input from local land owners.

J5. This route segment provides an alternative north-south between Segment J2 or J3 to the existing 161-kV line one mile to the south, crossing through on the one-half section line of the south half of section 1 and the north half of section 12 of Rost Township.

J6. This route segment provides a third, easternmost alternative pathway between routes J2 or J3 and the existing 161-kV route one mile to the south, after which the new line would be double-circuited with the existing line on Xcel's Segment T14. This route segment J6 is, in effect, an extension of new Segment J3, but instead of turning south along J5 (which connects to the 161-kV line near one residence), it continues east-west for an additional one and one-half to two miles along the half-section line to approximately the section line between sections 5 and 6 in Heron Lake Township. At that point, it turns north-south for one mile to intersect with the existing 161-kV route. However, on the north-south crossing the EIS will evaluate a one-half mile wide corridor—from the section line between sections 5 and 6 to the half-section line of section 5 to the east that crosses wetland areas—to allow maximum flexibility to avoid any nearby buildings or otherwise accommodate input from local land owners and local land use plans.

### **115-Kilovolt Line.**

In addition to the route segments proposed by Xcel Energy, the EQB will study the following route segments for the Nobles County Substation to Chanarambie Substation 115-kilovolt line. (See Figure 2).

### **C. Nobles County**

N1. This segment follows County 18 for one-half mile, connecting Xcel Energy's East and West Routes. It provides a short alternative to part of Xcel's Segment W4, which crosses along the half-section of some crop land.

N2. This segment provides an alternative to Xcel's Segment W4 in the area, which passes near several residences and crosses crop land in sections 8 and 17. This new segment N-2 instead enters Wilmont Township on the north side, between sections 5 and 4 on the west side of Durfee Avenue and proceeds south for two miles. It then turns east on the south side of 120<sup>th</sup> Street for one and one-half miles, where it turns again to cross north-south through section 15 to connect with Xcel's Segment W4.



N3. A one-half mile long segment that provides an optional connection between Segment N2 and Xcel Route W4. It follows 120<sup>th</sup> Street along an area with no residences.

N4. A one-half mile long segment that follows 120<sup>th</sup> Street and then north-south along Dillman Avenue where there are no adjacent homes, instead of crossing fields in section 8 as proposed by Xcel's Segment W4.

N5. This is an approximately one and one-half mile segment (See Figure 5) that is included for study in the EIS as a potential connecting route for the 115-kV line between a Nobles County Substation in Study Area B and the 115-kV routes.

Substation Sites. Although alternative substations sites were considered in Nobles County (see Section 3, below), no substation sites in addition to those proposed by Xcel Energy were selected for further study in the EIS.

#### **D. Murray County**

M1. This is a one-mile long north-south segment through section 32 of Fenton Township as an alternative to Xcel's Segment W5 along 70<sup>th</sup> avenue, which has two adjacent residences and associated tree groves.

M2. A one-mile long east-west segment that crosses between Xcel's East and West Routes along a township road, also intended to provide an alternative to Xcel Segment W5 that avoids the homes and tree groves along 70<sup>th</sup> Avenue to the south.

M3. Segments M3, M4 and M5 largely follow Murray County 29, and are intended to provide alternative routes to study in the EIS that may pass near fewer homes than Xcel's proposed routes in this area. M3 is a five-mile long north-south segment along County 29 that runs from the Murray County line to 51<sup>st</sup> Street, where it intersects with either new Segment M4 or M5.

M4. This is a two-mile long segment that provides an alternative cross-over from Segment M3 on County 29 to the Xcel Segment E4.

M5. This segment intersects with Segments M4 and M3 and extends east along County 29 for one-half mile and then turns north to follow County 29 for four miles, where it then intersects 91st at an existing 69-kV transmission line. The new 115-kV line would then be double-circuited on one set of poles with the existing 69-kV line along 91st for two miles, where it would then intersect with Xcel's East Route at Segment E5 or continue further west and connect into Xcel's West Route at Segment W6.



## **Appendix D**

### **Rejected Route Segments**

The following route segments were reviewed but not selected for further study or consideration, for the reasons provided.

#### **345 k-V Transmission Line**

##### **A. Rock County**

The only alternative route in Rock County to be reviewed as a potential alternative was Segment R1, which will be evaluated in the EIS (See Figure 1). No other feasible route segments besides the applicant's were identified in this area.

##### **B. Jackson County.**

The following potential routes for the 345-kilovolt line were rejected (Figure 3):

X1. This route is rejected because it is too close to the South Heron Lake Wildlife Management Area, which is an important waterfowl flyway and landing area, according to local citizens and the Department of Natural Resources. High-voltage transmission lines have been shown to cause injury and fatalities to waterfowl and migratory birds due to collisions. Although mitigation is possible, other route segments in the area are further from residences and further from South Heron Lake.

X2 through X7. These routes are rejected because there were other route segments available that avoided more residences, required fewer turns, are shorter. Segment X4 was also rejected because it is close to the South Heron Lake Wildlife Management Area (See X1).

X8. This five-mile long segment, which would connect routes to the east to the existing 161-kV right-of-way, is rejected because the northern section is close to South Heron Lake, and because it would come within 100-feet of two residences on the half-section line and close to several others. The additional route-segment in the area that will be studied in the EIS, Segment J2, does not come as close to any existing residence.

X9. This short crossing-segment is rejected because it would require the line to be built across the roadway from a residence, and other alternatives in the area avoided coming that close to a residence.

##### **C. Nobles County**

The following potential routes for the 345-kilovolt line were reviewed but rejected for the reasons provided:

X10. (Figure 4) This suggested route-segment follows a railroad right-of-way just west of the City of Adrian, instead of I-90. It was rejected for several reasons. First, there are wetlands and fens along the railroad tracks. Second, it requires crossing the Kanaranzi River. Third, there is a cluster of nearby homes, low ground generally, and there is a fiber optic line in the area. The EIS, however, will evaluate whether the existing 69-kV line in this area can be consolidated onto the same poles as the new 345-kV line, should the I-90 route be selected in this area.

X-11. (Figure 5) This segment, which uses County 9 as a north-south segment of the I-90 route instead of the half-section line, was rejected because it would come close to more adjacent homes than Xcel Segment I-6. However, the EIS will evaluate using the northern part of this route-segment (Segment N-5) for the 115-kV line because it may be required to connect into a substation located in Substation Area B in the Xcel Energy application.

I7. (Figure 5) Most of Xcel's route I7 will not be further considered as a potential route for the proposed transmission line because it would require new right-of-way and the other route option in the area does not. (The other option is Xcel Segment T10, which would be a double-circuit with the existing 161-line just to the north.) The westernmost part of Segment I7, however, is located within Substation Area B and will be evaluated in the EIS as a potential alternative route for the 115 kV line to connect from a substation to the potential 115-kV routes in the area.

### **115 k-V Transmission Line**

The following potential routes (Figure 6) for the 115-kilovolt line were reviewed but rejected for the reasons provided below:

#### **D. Nobles County**

X-12. This suggested route would interconnect into the 345-kV line on the "Alliant" route at a proposed Nobles County substation site (Site E) at the intersection of the existing 161-kV line and the Rock/Nobles County line. The 115-kV transmission line would then go north-south along the county line directly to the Chanarambie Substation. This route was rejected because the Nobles County substation and the proposed route (and related additional substations) would be too far to the west of prime wind-development areas and would therefore require numerous long and expensive feeder lines to interconnect wind turbines into the transmission system. (See Figure 7.) This would run counter to the underlying purpose of new lines, which in part is to accommodate wind-energy development in the area.

X-13 and X-14. These potential routes and the related substation location would have the transmission line following County Highway 91 (X-13), or parallel it along the half-section line, to three miles south of the Murray County line (X-14). Either route-segment would provide a more direct, shorter route to the Chanarambie Substation than the routes proposed by Xcel Energy. As with Segment X-12, these routes and substation location were rejected because they are west of the areas with highest wind potential. (In this case, the substation would be about 12-miles west of high wind area). In addition, either of these routes would require numerous stream crossings and be near to homes along Highway 91 or cross adjacent fields.

X-15. This route would detour off Xcel's "West Route" and run east-west for one mile, then turn north-south and parallel County 91 for three miles along the half-section line, as an alternative to using other routes to reach the Murray County line. However, this route was rejected because it crossed near to one residence, crossed farm fields, and presented no advantage over the Xcel "West" route and other route segments added in this area.

X-16. This route-segment, which follows County 15 in this area, was rejected because it requires passing close to more homes than other possible route segments in this area.

S-1. This substation site is rejected because associated transmission lines required for this project and likely future projects would cross near more homes than other substation sites proposed by Xcel Energy in their application.

#### **E. Murray County**

X-17. This route segment, which follows Highway 91 for one mile and then cuts back to the Xcel's "West" route, was considered to avoid homes and tree groves along the Xcel route. This option was rejected, however, because it required a two-mile detour and there are other route options in the area that will be included in the EIS that also avoid the nearby homes and tree groves.

X-18. Following Highway 91 all the way north through the City of Chandler up to the existing 69-kV transmission line on the Xcel "West" route was considered but rejected because it would require crossing through the City of Chandler itself and require crossing adjacent to large DNR protected wildlife management areas.



## **Appendix E**

### ***Time Line for Permitting Process***

<b>June 2004</b>	Open House Meetings in: June 1, Lakefield American Legion; June 2, Wilmont Community Center; June 9, Chandler City Hall; June 10, Luverne Public Library.
<b>July 2004</b>	7/01/04 First Task Force Meeting, Reading MN  7/08/04 Second Task Force Meeting, Reading MN Route Criteria Listed 7/22/04 Third Task Force Meeting, Reading MN Draft Scoping Document Reviewed
<b>August 15, 2004</b>	Public Scoping Comment Period Deadline
<b>September 2004</b>	Final Scoping Document Approved by EQB Chair

### ***Anticipated Time Line***

<b>Nov. 2004</b>	“Check-in Meeting” – one night to check in with interested local citizens.
<b>Dec. 2004</b>	Draft EIS Released Draft EIS Public Information Meeting Draft EIS Submitted to Administrative Law Judge
<b>Jan. 2005</b>	Formal Hearing and Final Public Comment Period on EIS EQB Response to Comments on EIS
<b>Feb. 2005</b>	Administrative Law Judge Makes Recommendation To Environmental Quality Board
<b>March 2005</b>	Environmental Quality Board Reviews Comments on ALJ Report, Meets, and Issues Permit

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- Figure 3.** Segments Reviewed but Rejected in Scoping: 345-kV Line in Jackson County
- Figure 4.** Segments Reviewed but Rejected in Scoping: 345-kV Line in Nobles County
- Figure 5.** Segments Reviewed but Rejected in Scoping: 345-kV Line in Nobles County
- Figure 6.** Segments Reviewed but Rejected in Scoping: 115-kV Line in Nobles and Murray County
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